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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,929	06/22/2006	Masahiro Amemiya	Q73500	5996

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EXAMINER	
CHIANG, TIMOTHY S	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
04/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,929	AMEMIYA ET AL.	
	Examiner	Art Unit	
	TIMOTHY CHIANG	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/14/2008; 07/14/2006; 06/13/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 objected to because of the following informalities: a comma should be placed before "and a quaternary ammonium hydroxide" to distinguish the quaternary ammonium hydroxide as a secondary component discrete from the surfactant compound. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitrach et al. (DE 19853961 hereinafter "Mitrach").

In regards to instant claims 1-3, Mitrach discloses a cleaning composition comprising tetramethylammonium hydroxide and the surfactant of the formula CH_3-$(CH_2)_a$-O-$(C_2H_4O)_b$-$(C_3H_6O)_c$-H, where $_a$ = 9-17, $_b$ = 3-12 and $_c$ = 0-10 page 2, lines 62-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amemiya et al. (PGPUB US 2001/0025017 hereinafter "Amemiya").

Regarding instant claim 1, Amemiya discloses a cleaning agent comprising quaternary ammonium hydroxide (abstract) and the surfactant of the formula R^{10}-O-(R^{11}-O)$_p$-H, where R^{10} represents an alkyl group of 6-20 carbon atoms, R^{11} represents an alkylene group of 2-4 carbon atoms, and p represents 3-20 [0019]-[0020]. Amemiya does not specifically disclose the taught surfactant of the instant claim as the formula below:

$R^1O(EO)_x(PO)_yH$ (I)

(wherein R^1 represents a linear or branched alkyl group having from 6 to 20 carbon atoms or a linear or branched alkenyl group having from 6 to 20 carbon atoms, EO represents an oxyethylene group, PO represents an oxypropylene group, EO and PO each is bonded by random addition or block addition, x number of EOs and y number of POs are arranged in an arbitrary order, x and y each independently represents an integer of 1 to 20, and $x/(x+y)$ is 0.5 or more)

However Amemiya differs only in that oxyethylene and oxypropylene groups are not specifically disclosed where $(R^{11}\text{-}O)_p$ is disclosed. Further, Amemiya discloses that the alkylene groups of $-CH_2CH_2-$ or $-CH_2CH_2CH_2-$ are preferred for R^{11} [0043], meaning Amemiya discloses the surfactant of the disclosed composition to include either one of the formula $R^{10}\text{-}O\text{-}(CH_2CH_2\text{-}O)_p\text{-}H$ or one of the formula $R^{10}\text{-}O\text{-}(CH_2CH_2CH_2\text{-}O)_p\text{-}H$. A random addition or block addition of oxyethylene and oxyproylene groups in arbitrary order as component of the surfactant compound would be well known in the art, and obvious and readily achieved by one skilled in the art at the time of invention depending on the end use of the surfactant since the Amemiya discloses that surfactants of either oxyethylene or oxypropylene are preferred [0043].

Regarding instant claims 2-3, Amemiya discloses the cleaning agent to contain the quaternary ammonium hydroxide compound of the formula taught in the instant claim and further discloses the quaternary ammonium hydroxide compound as tetramethylammonium hydroxide [0015]-[0016].

Regarding instant claims 4-6, Amemiya further discloses an alkanolamine compound of the taught formula of instant claim 5, and further discloses the compound

selected from the group consisting of monoethanolamine, diethanolamine, and triethanolamine [0017]-[0018].

Regarding instant claim 7, Amemiya further discloses the alkanolamine content in an amount of 0.01-20 mass % [0038].

Regarding instant claim 8, Amemiya further discloses the surfactant content in an amount of 0.0001-5 mass % [0033].

Regarding instant claim 9, Amemiya further discloses the quaternary ammonium hydroxide contained in an amount of 0.001 to 30 mass % [0035].

Regarding instant claims 10-12, Amemiya discloses a method for cleaning a semiconductor wafer comprising the steps of i) cleaning the substrate with the disclosed cleaning composition and ii) cleaning using a composition containing ammonia and hydrogen peroxide. Amemiya further specifies the disclosed method above wherein the degreasing and removal of particles on the semiconductor surface are performed in step i) and the removal of particles performed in step ii) [0049].

Regarding instant claims 13-14, Amemiya discloses a method of producing a semiconductor wafer which comprises "a lapping step of lapping the wafer surface, a polishing step of specularly polishing the wafer surface, and a cleaning step using the disclosed composition [0054]-[0055].

Regarding instant claim 15-18, Amemiya discloses a semiconductor wafer cleaned by the method disclosed above and further specifies the particles cleaned off having size of 0.2 m or more, and the number of such particles adhering to the wafer surface at 100 or less. Amemiya further discloses the surface roughness (Ra) varies

depending on the wafer type, being 0.2 nm or less in the case of a silicon wafer, and 0.4nm or less in the case of a gallium arsenide wafer [0053].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY CHIANG whose telephone number is (571)270-7348. The examiner can normally be reached on Monday - Thursday 9:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harold Y Pyon/
Supervisory Patent Examiner, Art Unit 1796

/TIMOTHY CHIANG/
Examiner, Art Unit 1796
04/08/2009